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DAY PITNEY LLP 7 TIMES SQUARE NEW YORK, NY 10036-7311			EXAMINER EASTMAN, AARON ROBERT	
			ART UNIT 3745	PAPER NUMBER
			NOTIFICATION DATE 09/30/2010	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/587,134

**Applicant(s)**

DAHL ET AL.

**Examiner**

Aaron R. Eastman

**Art Unit**

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7, 9-14, 16, 17 and 19-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-14, 16, 17 and 19-35 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ ~~Notes of Informal Patent Application~~
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed August 4, 2010 have been fully considered but they are not persuasive. Applicants argue that the conductor taught in Dencker is not essentially flush with a blade. Examiner points out that the term "essentially" is open to interpretation in that no dimension of thickness is given for Applicants' conductor and that Dencker provides that a conductive layer of about 0.1 mm is preferred which is interpreted as being essentially flush with the blade surface (paragraph [0028]). Applicants argue that Dencker's conductor is made of wires and not segmented particles as disclosed in Applicants' claims. Examiner disagrees in that Dencker discloses in paragraph [0030] that other suitable constructions comprise "electrically conductive layers comprising metal particles dispersed in a polymer layer." Applicants argue that Dencker fails to disclose a passage adjacent to the conductor means through which the lightning is conducted. Examiner wishes to point out paragraph [0058] which states "the electrical charges are guided to the ground in the air above the length of tape 22".

### ***Claim Objections***

2. Claims 1, 22, 34 and 35 are objected to because of the following informalities: In re claims 1, 22, 34 and 35, in the last paragraph of each claim, "whereby in the event of a lightning strike to form an ionized passage outside" should read --whereby in the event of a lightning strike an ionized passage is formed outside--. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5, 6, 10, 19, 20, 22, 27-29, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1011182 (Dencker hereinafter).

5. In re claim 1 Dencker discloses a method of manufacturing a fibre-reinforced blade (18) for a wind energy plant, said blade being configured with at least a blade shell and means for conducting to earth adapted for conducting a lightning current to an earth connection (paragraphs [0005], [0039] and [0040]); and wherein the method is characterized in comprising the steps of distributing and attaching segmented conductor means (paragraph [0057], line 31-33) essentially flush with the external surface of the blade shell;

wherein:

the conductor means are electrically conductive particles that have an expanse of between 0.05 and 10 mm (paragraphs [0050]-[0053]);

said conductive particles are separated to avoid the occurrence of a continuous conductor (paragraph [0058]); and

the conductor means are distributed in at least one path, said path having a width of between 3 and 50 mm (paragraph [0051]);

whereby in the event of a lightning strike an ionized passage is formed outside the blade adjacent to the conductor means for guiding a lightning current in the passage to the means for conducting current to earth (paragraph [0058]).

6. In re claim 5 Dencker discloses a method according to claim 1, characterized in that the conductor means are arranged in a pre-manufactured band made of an electrically non-conductive material (26, 30), including of a thermoplastic material.

7. In re claim 6 Dencker discloses a method according to claim 1, characterized in that the conductor means are arranged in an elongate bag-like band (Fig.'s 3 and 4), said band being configured to be penetrated, including by resin and/or gel-coat (tape layer 22b which is part of the band is a metalized fabric which is inherently capable of being penetrated by resin and/or gel-coat).

8. In re claim 10 Dencker discloses a method according to claim 8, characterized in that the electrically conductive particles are mixed with electrically non-conductive particles (26, 30), e.g. ceramic particles, colour pigments, etc.

9. In re claim 19 Dencker discloses a method according to claim 1, characterized in that the conductor means are preferably made of metal, including brass, nickel, copper, brass coated with nickel or varnished copper (paragraph [0050]).

10. In re claim 20 Dencker discloses a method according to claim 1, characterized in that the means for conducting to earth comprises at least one receptor arranged at the surface of the blade (Fig. 5).

11. In re claim 22 Dencker discloses a blade for a wind energy plant, said blade comprising a fibre-reinforced blade shell and means for conducting to earth adapted for conducting a lightning current to an earth connection, wherein the blade is provided with segmented conductor means configured for conducting a lightning current outside the blade to the means for conducting to earth, and wherein the blade is characterized in that the conductor means are essentially distributed and secured at the external surface of the blade shell in such a manner that the conductor means are essentially flush with the external surface of the blade shell;

wherein:

the conductor means are electrically conductive particles that have an expanse of between 0.05 and 10 mm (paragraphs [0050]-[0053]);

said conductive particles are separated to avoid the occurrence of a continuous conductor (paragraph [0058]); and

the conductor means are distributed in at least one path, said path having a width of between 3 and 50 mm (paragraph [0051]);

whereby in the event of a lightning strike an ionized passage is formed outside the blade adjacent to the conductor means for guiding a lightning current in the passage to the means for conducting current to earth (paragraph [0058]).

12. In re claim 27 Dencker discloses a method according to claim 1, characterized in that said electrically conductive particles have an expanse of between 1 and 8 mm (paragraphs [0050]-[0053]).

13. In re claim 28 Dencker discloses a method according to claim 1, characterized in that said path has a width of between 5 and 20 mm (paragraph [0051]).

14. In re claim 29 Dencker discloses a method according to claim 28, characterized in that said path has a width of between 8 and 12 mm (paragraph [0051]).

15. In re claim 34 Dencker discloses a method of manufacturing a fibre-reinforced blade (18) for a wind energy plant, said blade being configured with at least a blade shell and means for conducting to earth adapted for conducting a lightning current to an earth connection (paragraphs [0005], [0039] and [0040]); and wherein the method is characterized in comprising the steps of distributing and attaching segmented conductor means (paragraph [0057], line 31-33) essentially flush with the external surface of the blade shell;

wherein the conductor means are electrically conductive particles which are separated to avoid the occurrence of a continuous conductor (paragraph [0058]);

whereby in the event of a lightning strike an ionized passage is formed outside the blade adjacent to the conductor means for guiding a lightning current in the passage to the means for conducting current to earth.

16. In re claim 35 Dencker discloses a blade (18) for a wind energy plant, said blade comprising a fibre-reinforced blade shell and means for conducting to earth adapted for conducting a lightning current to an earth connection (paragraphs [0005], [0039] and [0040]), wherein the blade is provided with segmented conductor means (paragraph [0057], line 31-33) configured for conducting a lightning current outside the blade to the means for conducting to earth, and wherein the blade is characterized in that the

conductor means are essentially distributed and secured at the external surface of the blade shell in such a manner that the conductor means are essentially flush with the external surface of the blade shell;

wherein the conductor means are electrically conductive particles which are separated to avoid the occurrence of a continuous conductor (paragraph [0058]);

whereby in the event of a lightning strike an ionized passage is formed outside the blade adjacent to the conductor means for guiding a lightning current in the passage to the earth connection.

***Claim Rejections - 35 USC § 103***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 2, 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dencker in view of USP 6,319,346 (Clark et al. hereinafter).

19. In re claim 2 Dencker discloses all of the limitations except for comprising the steps:

- a) arrangement of segmented conductor means on a mould;
- b) laying of fibres on the mould, including on top of the conductor means;



c) attachment of the fibres and the conductor means by resin.

20. Clark et al. teach the process of applying parts to a carbon fiber structure during the moulding process by placing the part in the mould, laying fibres on the mould including on top of the part and attachment of the fibres and part by resin (col. 5 lines 49-50 and col. 6 lines 5-37).

21. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the manufacturing method of Dencker by arranging the segmented conductor means on a mould, laying fibres on the mould including on top of the conductor means and attaching the fibres and conductor means by resin as taught in Clark et al. for the purposes of decreasing production time by integrating the conductor attachment step with the moulding step.

22. In re claim 3 the Dencker modification in re claim 2 discloses a method according to claim 2, characterized in comprising application of a substance onto the mould, including gel-coat, resin, primer or release agent.

23. In re claim 7 the Dencker modification in re claim 2 discloses a method according to claim 2, characterized in comprising that the segmented conductor means and/or the band are, prior to step b), during moulding, fixated to the mould by adhesive means, including double-adhesive tape (the segmented conductor means of Dencker uses tape (22, 22a, 22b).

24. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dencker in view of USPAP 2003/0141721 (Bartlett hereinafter).

25. In re claim 4 Dencker discloses all of the limitations except for comprising sanding or polishing of the blade for exposing the conductor means.

26. Bartlett teaches sanding of a carbon fibre blade to reach a desired shape (paragraph [0156]).

27. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the manufacturing method of Dencker by sanding the blade as taught in Bartlett for the purposes of achieving a desired shape which would inherently expose the conductor means.

28. Claims 10, 14, 16, 21 and 23-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Dencker in view of USP 7,040,864 (Johansen et al. hereinafter).

29. In re claim 10 Dencker discloses a method according to claim 1, characterized in that the electrically conductive particles are mixed with electrically non-conductive particles (26, 30), but does not explicitly disclose ceramic particles, colour pigments, etc.

30. Johansen et al. teach the sealing of a lightning protection system with colour pigments, e.g. paint (col. 5 line 66-col. 6 line 4).

31. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Dencker by sealing of a lightning protection system with colour pigments, e.g. paint as taught in Johansen et al. for the purposes of protecting the lightning protection system against the weather elements.

32. In re claim 14 Dencker discloses all of the limitations except for comprising that the blade shell is configured with a number of recesses, in which recesses the conductor means are secured.

33. Johansen et al. teach a blade shell is configured with a number of recesses, in which recesses the conductor means are secured (col. 4 lines 10-14).

34. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Dencker by providing a blade shell configured with a number of recesses, in which recesses the conductor means are secured as taught in Johansen et al. for the purposes of maintaining the aerodynamic characteristics of the construction and limiting the damage by lightning (col. 4 lines 10-14).

35. In re claim 16 Dencker discloses all of the limitations except for at least one path being arranged essentially transversally to the longitudinal direction of the blade and extends essentially from the fore edge of the blade to the aft edge of the blade.

36. Johansen et al. teach at least one path being arranged essentially transversally to the longitudinal direction of the blade and extends essentially from the fore edge of the blade to the aft edge of the blade (Fig.'s 4 and 5).

37. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Dencker by providing at least one path being arranged essentially transversally to the longitudinal direction of the blade and extends essentially from the fore edge of the blade to the aft edge of the blade as taught

in Johansen et al. for the purposes of extending the current conducting material across the face (suction or pressure side) of the blade.

38. In re claim 21 Dencker discloses all of the limitations except for in that the receptor is arranged in a recess in the blade, said recess being essentially encircled by conductor means.

39. Johansen et al. teach a receptor (8) arranged in a recess in the blade, said recess being essentially encircled by conductor means.

40. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Dencker by providing a receptor arranged in a recess in the blade, said recess being essentially encircled by conductor means as taught in Johansen et al. for the purposes of positively securing the receptor to the blade.

41. In re claim 23 Dencker discloses all of the limitations except for in that the conductor means are arranged in a number of paths that extend from a receptor arranged at the surface of the blade, said receptor being connected to the means for conducting to earth.

42. Johansen et al. teach conductor means (9, 10) arranged in a number of paths that extend from a receptor (8) arranged at the surface of the blade, said receptor being connected to the means for conducting to earth (7, 12).

43. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Dencker by providing conductor means arranged in a number of paths that extend from a receptor arranged at the surface of

the blade, said receptor being connected to the means for conducting to earth as taught in Johansen et al. for the purposes of providing more than one possible path for the lightning thereby reducing the wear on the lightning protection system.

44. In re claims 24 and 25, the Dencker modification in re claim 23 discloses all of the limitations.

45. Claims 11, 12 and 30-33 are rejected under 35 USC 103(a) as unpatentable over Dencker.

46. In re claims 11 and 12 Dencker teaches the use of a lightning protection apparatus comprising electrically conductive layers comprising metal particles (paragraph [0030]) wherein the electrical charges of the lightning cause the creation of an electrical discharge along the entire tape similar to the one in a fluorescent lamp meaning that the electrical charges are guided to the ground in the air above the length of the mesh (paragraph [0058]). Dencker does not teach that the conductor particles are flat and elongate with a length of between 2 and 10 mm and a thickness of between 1 and 5 mm (claim 11) or that the conductor particles are flat and essentially circular with a length of between 2 and 10 mm and a thickness of between 0.1 and 1 mm (claim 12).

47. Since Applicant has not disclosed that having the conductor particles being flat and elongate with a length of between 2 and 10 mm and a thickness of between 1 and 5 mm (claim 11) or that the conductor particles being flat and essentially circular with a length of between 2 and 10 mm and a thickness of between 0.1 and 1 mm (claim 12) solves any stated problem or is for any particular purpose above the fact it produces an

ionized passage in the air above the particles for conducting lightning current and it appears that the lightning protection method of Dencker would perform equally well with a shape and having the dimensions as claimed by Applicant, it would have been an obvious matter of design choice to modify the lightning protection method of Dencker by utilizing the specific shape and dimensions as claimed for the purpose of producing an ionized passage in the air above the particles for conducting lightning current.

48. In re claims 30-33 Dencker discloses all of the limitations except for wherein said particle separation is defined by spacing of 0.1 to 5 mm (claims 30 and 32) and wherein said particle separation is defined by spacing of 0.3 to 1.5 mm (claims 31 and 33). It would have been obvious to one having ordinary skill in the art at the time the invention was made to define particle separation by spacing of 0.1 to 5 mm (claims 30 and 32) or by spacing of 0.3 to 1.5 mm (claims 31 and 33), since it has been held that where the general conditions of a claim (Dencker already discloses separated particles (paragraph [0058]) are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

49. Claim 13 is rejected under 35 USC 103(a) as unpatentable over Dencker in view of Applicant's admitted prior art (AAPA hereinafter), specifically page 3 lines 5-10 of Applicants' specification.

50. In re claim 13 Dencker discloses all of the limitations except for the conductor means being metal shavings preferably made by planing, milling or turnery.

51. AAPA teaches conductor means comprising aluminum powder that are interrupted or segmented conductive particles. A person having ordinary skill in the art

at the time of the invention would have known that aluminum powder can easily be made by any one of planing, milling or turnery.

52. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the manufacturing method of Dencker by forming the conductor means of metal shavings as taught in AAPA by way of planing, milling or turnery for the purposes of providing a simple way to produce the metal shavings.

53. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dencker in view of Johansen et al. and in further view of USP 6,457,943 (Olsen et al. hereinafter).

54. In re claim 17 the Dencker modification in re claim 16 discloses all of the limitations except for wherein a main laminate of the blade shell comprises electrically conductive fibers.

55. Olsen et al. teaches wherein a main laminate of the blade shell comprises electrically conductive fibers (col. 1 lines 22-24 and col. 2 lines 7-9).

56. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the apparatus of the Dencker modification in re claim 16 by providing a main laminate of the blade shell that comprises electrically conductive fibers as taught in Olsen et al. for the purposes of protecting the carbon fiber coating (col. 1 lines 22-24 and col. 2 lines 7-9 of Olsen et al.).

57. Claim 26 is rejected under 35 USC 103(a) as unpatentable over Dencker in view of Johansen et al and in further view of USP 4,237,514 (Cline hereinafter).

58. The Dencker modification in re claim 25 teaches all of the limitations of claim 26 except for in that the conductor means comprise an essentially evenly distributed layer of metal shavings.

59. Cline teaches conductor means comprising aluminum powder that are interrupted or segmented conductive particles uniformly distributed (col. 2 lines 52-53).

60. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of the Dencker modification in re claim 25 by forming the conductor means of an essentially evenly distributed layer of metal shavings as taught in Cline for the purposes of minimizing physical damage (col. 2 lines 67-col. 3 line1 of Cline).

#### ***Allowable Subject Matter***

61. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron R. Eastman whose telephone number is (571)270-3132. The examiner can normally be reached on Mon-Thu 9:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron R. Eastman/  
Examiner, Art Unit 3745

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